

WPI / Thomson

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TI - Laminated structure material for molded laminate e.g. hose, has layer containing polyamide 11 and/or polyamide 12 and layer(s) containing polyamide containing preset amount of specific diamine unit and dicarboxylic acid unit

IW - LAMINATE STRUCTURE MATERIAL MOULD HOSE LAYER CONTAIN POLYAMIDE PRESET AMOUNT SPECIFIC UNIT ACID

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IC - B32B27/34; F16L11/04

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AB - NOVELTY :

A laminated structure material has layer (a) containing polyamide 11 and/or polyamide 12, and 2 or more layers of layer containing polyamide which consists of diamine unit and dicarboxylic acid unit. The diamine unit contains 10-13C aliphatic diamine unit (in mol%) (60 or more). The dicarboxylic acid unit contains terephthalic acid and/or naphthalene dicarboxylic acid units (60 or more).

- DETAILED DESCRIPTION :

An INDEPENDENT CLAIM is included for molded laminate, which is formed from the laminated structure material.

- USE :

For molded laminate such as tank, film, bottle, hose and tube for fuel piping (all claimed), motor vehicle component, industrial material, electronic component, machine component, component for business machine, household product, container, sheet, wire coating material, optical fiber coating material, agricultural film, lining, interior material for construction such as wall paper, laminate steel plate, bottle and container for chemicals, bag and petrol tank.

- ADVANTAGE :

The laminated structure material has excellent heat resisting property, chemical resistance, low temperature impact resistance, alcohol gasoline transmissive prevention property and interlayer adhesivity.

- POLYMERS :

Preferred Arrangement: The laminated material has layer (a) arranged as outer most layer and 2 or more layers having lamination of layer (a)/layer (b) which are arranged inside with respect to layer (a).

Preferred Property: The innermost layer has electroconductivity.

Preferred Method: Each layer of the laminated structure material is manufactured by co-extrusion.

- EXAMPLE :

UBESTA3030U (impact improvement material) (in wt.%) (10), JSR T7712SP (85) and TEX44 (benzene sulfonic acid butylamide, plasticizer) (5) were mixed at 180-260[deg]C and extruded to obtain pellet of polyamide 12 resin composition (A). Terephthalic acid (in g) (32927), 1,12-dodecane diamine (40073), benzoic acid (439.6) and raw material of sodium hypophosphite monohydrate (65) and distilled water (40 l)

were reacted to obtain pre-polymer. The pre-polymer was dried, ground and subjected to solid state polymerization to obtain semi aromatic polyamide (B) with melting point of 301[deg]C and relative viscosity of 2.45. Composition (A) was extruded at 250[deg]C to form layer (A). Polyamide (B) was melted and extruded at 320[deg]C and molded to form tubular material (B). Layer (A) of 0.45 mm thickness, material (B) of 0.2 mm thickness and layer (A) of 0.35 mm thickness were sequentially laminated to form laminated structure material. The laminated structure material had excellent low temperature impact resistance, alcohol gasoline transmissive prevention property and interlayer adhesivity.